Amendments to the Claims:

This listing of Claims will replace all prior versions, and listings, of Claims in the application.

Listing of Claims:

1.   (Currently Amended) A gamut conversion system comprising:

input channel means ~~to receive~~ for receiving source image data;

a gamma unit ~~to convert~~ for converting said source image data into perceptually uniform space data;

a chroma/luma unit ~~to convert~~ for converting said preceptiually uniform space data into a format comprising chroma and luma components;

a hue angle calculator ~~to receive~~ for receiving at least the chroma components from the chroma/luma unit and to calculate hue angles for said source image data based on received chroma components;

a gamut conversion unit ~~to derive~~ for deriving gamut conversion values to apply to the components of said source image data using a gamut conversion table, said gamut conversion unit further comprising a means for adjusting out-of-gamut colors back into the output gamut.

2.   (Original) The gamut conversion system of Claim 1 wherein the chroma/luna unit may bypass said source image data, if said source image data is already in a format comprising chroma and luma components.

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3.   (Original) The gamut conversion system of Claim 1 wherein said hue angle calculator calculates hue angles in degrees from zero to some power of two.

4.   (Original) The gamut conversion system of Claim 1 wherein said gamut conversion table comprises a look-up table having pre-computed and stored gamut conversion values that are computed off-line.

5.   (Currently Amended) The gamut conversion system of Claim 1 wherein the gamut conversion values are deteremined determined by traversing the edges of a plurality of gamuts that said system is to apply conversion.

6.   (Currently Amended) The gamut conversion system of Claim 5 wherein said plurality of gamuts that said system is to apply conversion comprises a plurality of a group, said group comprising: input gamuts, monitor gamuts and multi-primary gamuts.

7.   (Original) The gamut conversion system of Claim 5 wherein said gamut conversion values are calculated by traversing around the edge of a gamut to generate saturation values.

8.   (Original) The gamut conversion system of Claim 7 wherein said gamut conversion values generate one color in a perceptually uniform chroma/luma space for each hue angle.

9.   (Original) The gamut conversion system of Claim 8 wherein said gamut conversion unit arbitrarily chooses saturation and chroma values for each hue angle, converts the color to CIE chromaticity, corrects the resulting color to substantially lie on the edge of the gamut polygon, and converts the color to chroma/luma.

10.   (Original) The gamut conversion system of Claim 7 wherein said gamut conversion values are generated along the edges of the gamut and, for a set of points along said edge, chroma/luma and hue angle data is generated.

11.   (Original) The gamut conversion system of Claim 10 wherein for each hue angle, a plurality of chroma/luma data is generated.

12.   (Original) The gamut conversion system of Claim 10 wherein ratios of saturation values are computed to convert one gamut space to another gamut space.

13.   (Currently Amended) A gamut conversion unit comprising:

means for generating gamut conversion values, said values calculated by traversing the edges of a plurality of gamuts that said unit is to apply conversion;

storage unit for storing said gamut conversion values;

means for calculating hue angle of input image data; and

means for adjusting chroma values based on the calculated hue angles wherein said means for adjusting further comprises a means for adjusting out-of-gamut colors back into the output gamut.

14.   (Currently Amended) The gamut conversion unit of Claim 13 wherein said plurality of gamuts comprises a plurality of a group, said group comprising: standard gamuts, monitor gamuts and multi-primary gamuts.

15.   (Original) The gamut conversion unit of Claim 13 wherein said values are calculated by traversing around the edge of a gamut to generate saturation values.

16.   (Original) The gamut conversion system of Claim 13 wherein said values generate one color in a perceptually uniform chroma/luma space for each hue angle.

17.   (Currently Amended) The gamut conversion unit of Claim 16 wherein said means for generating gamut conversion values chooses saturation and

chroma values for each hue angle, converts the color to CIE chromaticity,

corrects the resulting color to substantially lie on the edge of the gamut polygon,

and converts the color is-converted back to chroma/luma.

18.   (Original) The gamut conversion unit of Claim 16 wherein said values

are generated along the edges of the gamut and, for a set of points along said

edge, chroma/luma and hue angle data is generated.

19.   (Original) The gamut conversion unit of Claim 18 wherein for each hue

angle, a plurality of chroma/luma data is generated.

20.   (Original) The gamut conversion unit of Claim 18 wherein ratios of

saturation values are computed to convert one gamut space to another gamut

space.

21.   (Withdrawn) A method for converting gamut from one source input image

data set to another image data set, the method comprising:

receiving source image data;

if source image data is not in a perceptually uniform space, conveting

source image into perceptually uniform space data;

if the image data does not have separate chroma/luma values, generating

said chroma/luma values for said data;

calculating hue angles for said source image data based on the chroma/luma values;

calculating gamut expansion values to be applied to said source image data for the appropriate gamut based on the calculated hue angles; and

applying calculed gamut expansion values to the chroma components of said source image data.

22.   (Withdrawn) In a image processing system, a method for converting from a first color space to a second color space, the method comprising:

for any given first color point in said first color space, said first color point having a first hue angle, calculating a first edge point on the edge of the first color space comprising substantially the same first hue angle;

converting said first edge point into said second color space;

calculating a scale factor;

converting said first color point to a second color point in said second color space;

multiplying said second color point by said scale factor.

23.   (Withdrawn) The method of Claim 22 wherein the step of calculating a first edge point on the edge of the first color space further comprising:

selecting the maximum component of the first color point;

calculating the inverse of said maximum component;

multiplying said inverse to the components of said first color point.

24.   (Withdrawn) The method of Claim 22 wherein the step of converting said first edge point into said second color space further comprising:

optionally converting said first edge point into separate chroma components, if said first color space is not in a chroma/luma format;

calculating a hue angle from said chroma components;

calculating the chromaticity triangle from said hue angle;

selecting a color space conversion matrix using said chromaticity triangle;

multiplying said first edge point by said conversion matrix.

25.   (Withdrawn) The method of Claim 22 wherein the step of converting said first color point to a second color point in said second color space further comprising:

optionally converting said first color point into separate chroma components, if said first color space is not in a chroma/luma format;

calculating a hue angle from said chroma components;

calculating the chromaticity triangle from said hue angle;

selecting a color space conversion matrix using said chromaticity triangle;

multiplying said first color point by said conversion matrix.

26.   (Withdrawn) The method of Claim 22 wherein the steps of converting first edge point and converting said first color point further comprises using the same conversion matrix for both said first edge point and said first color point.

27.   (Withdrawn) The method of Claim 22 wherein the step of calculating a scale factor further comprises:

calculating the maximum component of said converted first edge point;

calculating the inverse of said maximum component.

28.   (Withdrawn) An image processing system comprising:

means for calculating a first edge point on the edge of a first color space;

means for converting said first edge point into a second color space;

means for calculating a scale factor;

means for converting a first color point to a second color point in said second color space; and

means for multiplying said second color point by said scale factor.

29.   (Withdrawn) The image processing system of Claim 28 further comprising:

means for selecting a maximum component of a first color point;

means for calculating an inverse of said maximum component;

means for multiplying said inverse to the components of said first color point.

30.   (Withdrawn)   The image processing system of Claim 28 further comprising:

means for calculating a hue angle from chroma components of a first color point;

means for calculating the chromaticity triangle from said hue angle;

means for selecting a color space conversion matrix using said chromaticity triangle;

means for multiplying said first edge point by said conversion matrix.

31.   (Withdrawn) The image processing system of Claim 28 wherein: said scale factor contracts first color points into a second color space.

32.   (Withdrawn) The image processing system of Claim 28 wherein: said scale factor expands first color points into a second color space.

33.   (New) A gamut conversion system comprising:

an input channel for receiving source image data;

a hue angle calculator for calculating the hue angle of said source image data;

a look up table, said table comprising values of saturation ratios between

an input gamut and an output gamut at a plurality of hue angles;

a calculation unit for adjusting the chroma value of said source image data

to chroma values of output image data; and

a gamut adjusting unit to adjust output image data that are outside of the

output gamut.

34. (New) The gamut conversion system of Claim 33 wherein further said look

up table comprising a single saturation ratio for each hue angle.

35. (New) The gamut conversion system of Claim 34 wherein said single

saturation ratio is the maximum saturation ratio between the input gamut and the

output gamut at the hue angle.